(No Model.)

T. A. EDISON.

DEVICE FOR TURNING-OFF PHONOGRAM BLANKS.

No. 448,780. Patented Mar. 24, 1891.

Fig.1.

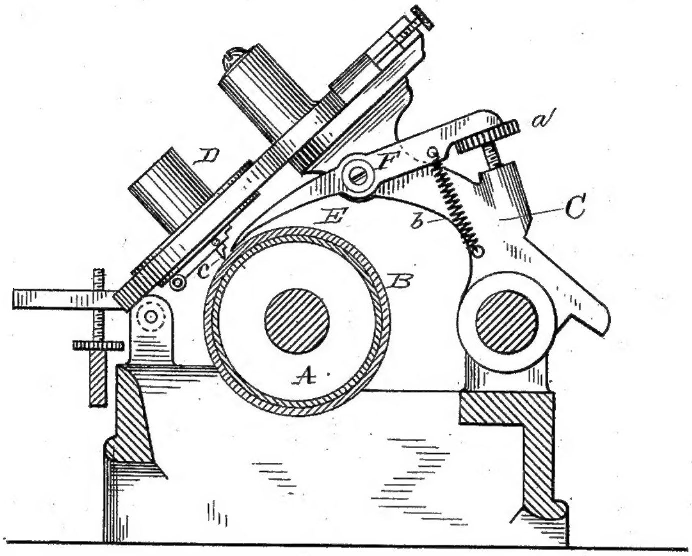


Fig.3.

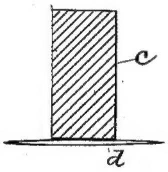


Fig.4.

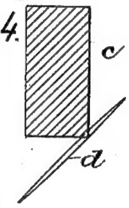
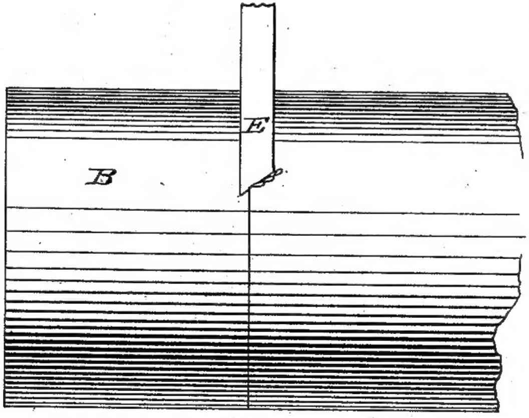


Fig.2.



Witnesses.
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William Pelzer

Inventor
Thomas A. Edison
By his Attorneys Dyer & Seely

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS A. EDISON, OF LLEWELLYN PARK, NEW JERSEY, ASSIGNOR TO THE EDISON PHONOGRAPH COMPANY, OF NEW JERSEY.

DEVICE FOR TURNING OFF PHONOGRAM-BLANKS.

SPECIFICATION forming part of Letters Patent No. 448,780, dated March 24, 1891.

Application filed July 7, 1888. Serial No. 279,322. (No model.)

To all whom it may concern:

Be it known that I, THOMAS A. EDISON, of Llewellyn Park, in the county of Essex and State of New Jersey, have invented a certain new and useful Improvement in Phonographs, (Case No. 784,) of which the following is a specification.

In my phonograph I employ a removable phonogram-blank having a recording-surface of a yielding material. I prefer to use a wax or a wax composition for the purpose, and I also prefer to make the entire blank of the wax or wax composition. These blanks after being mounted in the machine have their recording-surface turned true by a knife which is carried by the rocking holding-arm and the point of which is preferably in close proximity to the recording-point. The blanks used with my machine are also preferably adapted to have their surfaces turned off by this same cutting-tool for the purpose of using them a number of times, an old record being removed to make place for a new one.

I have heretofore employed as the cutting-tool a knife with its cutting-edge parallel with the axis of the phonogram-cylinder and practically at right angles to the track of record.

I have discovered that wax and similar yielding materials by reason of their elasticity and the cohesion of the particles are not turned off smoothly by the tool, but that microscopic cracks or breaks in the surface are formed which are parallel with the edge of the cutting-tool. To these cracks or breaks I attribute in a measure the production of foreign sounds by the record. These cracks or breaks are not as deep as the track made by the recording-point; but since the recording-point meets at the one time the resistance due to material of the full depth of its incision and at another time (when crossing a crack or break in the surface) a lesser body of material, I have found that the record produced is correspondingly affected, having irregularities causing false vibrations in the reproducer. I have found that the effect of these cracks or breaks is greatly modified, and the trouble arising from them largely overcome by so cutting or turning off the surface of the blank that the cracks will be oblique to the track of record or the direction of relative movement of the surface and the recording-point. The improved effect, I think, is due to the fact that when the cracks are oblique the recording-point does not meet the crack across the full width of its advancing edge at one time, but only across a portion of such edge, and the disturbance is more gradual and is extended over a greater time.

In the accompanying drawings, forming a part hereof, Figure 1 is a vertical transverse section of a phonograph provided with a turning-off tool; Fig. 2, a view showing the phonogram-blank being cut by the tool; and Figs. 3 and 4 are views, on an exaggerated scale, showing the relation between the recording-point of the phonograph and the cracks in the recording-surface.

A is the revolving phonogram-cylinder, having the wax phonogram-blank B carried thereby.

C is the rocking holding-arm carrying the recorder D and the cutting-tool E. This tool is a knife mounted on the end of a lever F, pivoted to the arm C. The end of the lever F in rear of the pivot passes over the head of an adjusting-screw *a*, while a spring *b* draws it downwardly against said screw. The point of the knife E is oblique, as shown in Fig. 2, the cracks produced in the wax recording-surface by it being oblique to the track of record made by the point *c* of the recorder.

In Figs. 3 and 4 are shown in horizontal section the recording-point *c*, while *d* represents the cracks in the recording-surface. If those cracks are parallel with the advancing edge of the recording-point, as shown in Fig. 3, the recording-point will meet the cracks at the same time across the full width of its advancing edge, while if the cracks are oblique, as in Fig. 4, only a portion of the advancing edge of the recording-point will be in the crack at any one time, and the distributing effect of the crack will be distributed over a greater space of time, and hence will be more gradual.

In my application, Case No. 785, (Patent No. 393,465, dated November 27, 1888,) I have claimed the method of preparing the recording-surfaces of phonogram-blanks by cutting them oblique to the axis of the blanks or the tracks of record, and hence that method is not claimed in this case, which relates to the phonogragh provided with a knife for performing that method.

What I claim is—

1. The combination, in a phonograph, of a phonogram-blank for the reception of the record, means for making the record, and a cutting-tool with an edge oblique to the track of record, substantially as set forth.

2. The combination, in a phonograph, of a phonogram-blank and means for turning the same, a recording-point bearing on the surface of the blank and making a record thereon, and the turning-off tool supported on the recorder-carrying arm and having a cutting-edge oblique to the track of record, substantially as described.

This specification signed and witnessed this 30th day of June, 1888.

THOS. A. EDISON.

Witnesses:

WILLIAM PELZER,
A. W. KIDDLE.